

# Annual Water Quality Report 2005



**Pequannock and Wanaque  
(NJDWSC) Water Systems**

# City of Newark

## Pequannock and Wanaque (NJDWSC) Water Systems

### 2005 Annual Water Quality Report

**This is an annual report on the quality of water delivered by City of Newark. It meets the Federal Safe Drinking Water Act (SDWA) requirement for "Consumer Confidence Reports" and contains information on the source of our water, its constituents, and the health risks associated with any contaminants. Safe water is vital to our community. Please read this report carefully and, if you have questions, call the numbers listed below.**

Call us for information about the next opportunity for public participation in decisions about our drinking water at (973) 256-4965. Find out more about the City of Newark on the Internet at: <http://www.newarkwater.org>

The report contains important information about our drinking water. If you do not understand it, please have someone translate it for you.

*Este informe contiene información muy importante sobre su agua beber. Tradúzcalo ó hable con alguien que lo entienda bien.*

*Este reporte contem informações importantes sobre a sua água de beber. Traduza-o ou fale com alguém que o compreenda.*

The Newark Department is a public community water system consisting of 0 well(s), 0 wells under the influence of surface water, 1 surface water intake(s), 1 purchased ground water source(s).

This system's source water comes from the following aquifer(s) and/or surface water body(s) (if applicable): Charlottesburg Reservoir.

This system purchases water from the water system(s) (if applicable): ELIZABETHOWN W C, NJDWSC.

Susceptibility Ratings for Newark Water Department Sources.

The table below illustrates the susceptibility ratings for the seven contaminant categories (and radon) for each source in the system. The table provides the number of wells and intakes that rated high (H), medium (M), or low (L) for each contaminant category. For susceptibility ratings of purchased water, refer to the specific water system's source assessment report.

The seven contaminant categories are defined at the bottom of this page. DEP considered all surface water highly susceptible to pathogens, therefore all intakes received a high rating for the pathogen category. For the purpose of Source Water Assessment Program, radionuclides are more of a concern for ground water than surface water. As a result, surface water intakes' susceptibility to radionuclides was not determined and they all received a low rating.

**If a system is rated highly susceptible for a contaminant category, it does not mean a customer is or will be consuming contaminated drinking water.** The rating reflects the potential for contamination of source water, not the existence of contamination. Public water systems are required to monitor for regulated contaminants and to install treatment if any contaminants are detected at frequencies and concentrations above allowable levels. As a result of the assessments, DEP may customize (change existing) monitoring schedules based on the susceptibility ratings.

- ⇒ **Pathogens:** Disease-causing organisms such as bacteria and viruses. Common sources are animal and human fecal wastes.
- ⇒ **Nutrients:** Compounds, minerals and elements that aid growth, that are both naturally occurring and man-made. Examples include nitrogen and phosphorus.
- ⇒ **Volatile Organic Compounds:** Man-made chemicals used as solvents, degreasers, and gasoline components. Examples include benzene, methyl tertiary butyl ether (MTBE), and vinyl chloride.
- ⇒ **Pesticides:** Man-made chemicals used to control pests, weeds and fungus. Common sources include land application and manufacturing centers of pesticides. Examples include herbicides such as atrazine, and insecticides such as chlordane.
- ⇒ **Inorganics:** Mineral-based compounds that are both naturally occurring and man-made. Examples include arsenic, asbestos, copper, lead, and nitrate.
- ⇒ **Radionuclides:** Radioactive substances that are both naturally occurring and man-made. Examples include radium and uranium.



Susceptibility Ratings for Newark Water Department Sources	Pathogens			Nutrients			Pesticides			Volatile Organic Compounds			Inorganics			Radio- nuclides			Radon			Disinfection Byproduct Precursors	
Sources	H	M	L	H	M	L	H	M	L	H	M	L	H	M	L	H	M	L	H	M	L	H	M
Wells—0																							
GUI—0																							
Surface water intakes—1	1								1				1					1				1	

system, which finds its way to you, the consumer. This is all done at fully NJDEP and EPA Certified Water Quality Laboratories.

In response to the events of September 11, and to the State's Domestic Security Preparedness Act, Newark has completed a vulnerability assessment of its water supplies, treatment plant and transmission system, provided additional security, and reviewed operations to include a greater emphasis on security issues. The City is taking the necessary proactive steps to implement the conclusions of this study.

⇒ **Radon:** Colorless, odorless substances, cancer-causing gas that occurs naturally in the environment. For more information go to: [Http://www.nj.gov.dep/rpp/radon/index.htm](http://www.nj.gov.dep/rpp/radon/index.htm) or call (800) 648-0394.

⇒ **Disinfection Byproduct precursors:** A common source is naturally occurring organic matter in surface water. Disinfection byproducts are formed when disinfectants (usually chlorine) used to kill pathogens react with dissolved organic material (for example leaves) present in surface water.

### Overview

#### Water Source

The City of Newark's water comes entirely from surface sources in the Pequannock and Wanaque watersheds that cover 150 square miles of forestlands in Morris, Sussex and Passaic Counties. Newark's Pequannock Supply is from five pristine water supply reservoirs; the 14.4 billion gallon supply is from Charlottesburg, Echo Lake, Canistear, Clinton and Oak Ridge reservoirs. NJDWSC gets its water from two of the most pristine water supply reservoirs in the country; namely, the 29.6 billion gallon Wanaque and the 7 billion gallon Monksville. The Commission also operates two pump stations designed to pump 250 million gallons per day of water from the Pompton River and 150 million gallons per day from the Ramapo River into the Wanaque Reservoir as needed. The New Jersey Department of Environmental Protection (NJDEP) has completed Source Water Assessment Reports and Summaries for all Public Water Systems (PWS). Further information on the source water assessment program can be obtained by logging on to NJDEP's source water assessment website at [www.state.nj.us/dep/swap](http://www.state.nj.us/dep/swap) or by contacting NJDEP's Bureau of Safe Drinking Water at 609-292-5550. You may also contact the City of Newark water department at 973-256-4965.

The City of Newark was required to conduct the UCMR sampling and testing for the Unregulated Contaminants Monitoring Rule (UCMR). During this testing no UCMR contaminants were detected.

#### Safeguarding Our Water

The City of Newark Water Treatment plant is located in West Milford and the NJDWSC Water Treatment Plant is located in Wanaque, NJ, where it is purified and filtered to ensure its safety and potability. To ensure the safety of the water, NJDWSC and Newark routinely monitors and tests the water at rivers, lakes and streams that supply its reservoirs. We continually monitor the quality of water throughout the distribution

#### What Does This Table Mean?

The table shows the results of our water quality analyses. The table contains the name of the substance, the highest level allowed by regulation (MCL), the ideal goals for public health, the amount detected, the usual sources of such contamination, footnotes explaining our findings, and a key to units of measurement. Definitions of MCL, MRDL, MRDLG and MCLG are important.

#### NEWARK'S WATER QUALITY REPORT 2005

Regulated Contaminants	Units	Maximum Contaminant Level Goal (MCLG)	Maximum Contaminant Level (MCL)	Results		Source of Contaminant
				Pequannock System	Wanaque System	
Inorganic Contaminants:						
Barium	ppm	2	2	0.007	0.0077	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
Chromium	ppb	100	100	0.001	2.4	Erosion of natural deposits; discharge from steel and pulp mills
Copper	ppm	1.3	AL=1.3	0.12	0.058	Corrosion of household plumbing systems; erosion of natural deposits
Fluoride	ppm	4	4	0.06	0.111	Erosion of natural deposits; additive promoting strong teeth. Discharge from fertilizer and AL factories
Lead	ppb	0	AL=15	0-14.2	0-12.3	Corrosion of household plumbing systems; erosion of natural deposits.
Nitrate (As N)	ppm	10	10	0.016-0.66	0.2	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Radiological Substances:						
Gross Alpha	pCi/l	0	15	0.49	<0.86	Erosion of natural deposits.
Radium 228	pCi/l	0	5	0.04	0.03	Erosion of natural deposits.
Regulated Contaminants	Units	Maximum Contaminant Level Goal (MCLG)	Maximum Contaminant Level (MCL)	Results		Source of Contaminant
				Pequannock System	Wanaque System	
Microbiological Substances:						
Total Coliforms Bacteria	Presence of positive sample	0	5% of Monthly Samples are Positive	0	0.000%	Naturally present in the environment
Volatile Organic Chemicals:						
VOC=S	ppb		MCL dependent on specific VOC	N.D.	N.D.	VOC=S come from industrial chemical factories discharges. They include benzene, toluene and naphthalene
Turbidity :						
Turbidity	ntu	N.S.	<5% of samples exceed 0.3 NTU	0.07-0.24	0.01-0.23	Soil runoff
Treatment by-products:						
Total Trihalomethanes (TTHM=s)	ppb	N.A.	80	50-68 Average = 59.5	27.84-64.85 Average = 48.46	By product of drinking water disinfection
Haloacetic Acids	ppb	NA	60	46-61 Average = 52	19.3-46.41 Average = 34.32	By product of drinking water disinfection
Secondary Contaminants	Units	Secondary Maximum Contaminant Level (SMCL)	Results		Source of Contaminant	
			Pequannock System	Wanaque System		
Alkalinity	ppm	NS	24.1	24.1	24.4	A characteristic of water caused primarily by carbonate,bicarbonate and hydroxide ions.
Aluminum	ppm	0.2	0.130	0.130	0.025	By-product of water treatment using aluminum salts.
Calcium	ppm	NS	14.1	14.1	26	Erosion of natural deposits.
Chloride	ppm	250	29.4	29.4	33.5	Erosion of natural deposits.
Chlorine Residual	ppm	4	0.82	0.82	1.12	Chlorine remaining in treated water and available to destroy disease causing organisms.
Color	CU	10	3	3	2	Presence of manganese and iron,plankton,humus, peat and weeds.
Hardness	ppm	50-250	43.7	43.7	47.7	A characteristic of water caused primarily by salts of calcium and magnesium.
Magnesium	ppm	NS	4.03	4.03	6	Erosion of natural deposits
Odor (TON)	TON	3	1	1	1	Algae and plant matter.
Secondary Contaminants	Units	Secondary Maximum Contaminant Level (SMCL)	Results		Source of Contaminant	
			Pequannock System	Wanaque System		
pH	units	6.5-8.5	7.49	8	8	Presence of carbonates, bicarbonates and carbon dioxide.
Sodium	ppm	50	15.3	15.3	16	Runoff from road salt and from some water softening processes.
Sulfate	ppm	250	9.9	9.9	8.21	Drainage of mining wastes, erosion of natural deposits.
Total Dissolved Solids	ppm	500	103	103	110	Erosion of natural deposits.
Chlorine	ppm	4.0 MRDL	4.0 MRDLG	< 4.0	<4.0	Needed for control of Microbial Contaminants



## Key to Table

**Maximum Contaminant Level (MCL):** The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

**Maximum Contaminant Level Goal (MCLG):** The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

**Maximum Residual Disinfectant Level (MRDL):** The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

**Maximum Residual Disinfectant Level Goal (MRDLG):** The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contamination.

- ⇒ **Action Level (AL):** The concentration of a contaminant which, if exceeded, triggers treatment or other requirement that a water system must follow.
- ⇒ **Treatment Technique (TT):** A required process intended to reduce the level of a contaminant in drinking water.
- ⇒ **ppm (parts per million):** 1 drop in 10 gallons, 1 inch in 16 miles, or one penny in \$10,000.
- ⇒ **ppb (parts per billion):** 1 drop in 10,000 gallons, 1 inch in 16,000 miles, or one penny in \$10,000,000.
- ⇒ **picoCurie (pCi):** A unit used to describe the level of activity or decay of a radioactive element.
- ⇒ **MFL** = million fibers per liter.
- ⇒ **mrem/year** = millirems per year (a measure of radiation absorbed by the body).
- ⇒ **NTU** = Nephelometric Turbidity Units.
- ⇒ **pCi/l** = pico curies per liter (a measure of radioactivity).
- ⇒ **ppt** = parts per trillion, or nanograms per liter.
- ⇒ **ppq** = parts per quadrillion, or picograms per liter.
- ⇒ **Secondary Contaminants** = Federal drinking water measurements for substances that are not health related. These are recommended levels and reflect aesthetic qualities of water.
- ⇒ **SMCL** = Secondary Maximum Contaminant Level.
- ⇒ **TON** = Threshold Odor Number.
- ⇒ **NS** = No Standard.
- ⇒ **ND** = Not detectable at testing limit.

## Questions and Answers

### Current Water Issues

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA and Centers for Disease Control guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the EPA Safe Drinking Water Hotline: (1-800-426-4791).

### Is my water hard or soft?

Hardness describes the level of the dissolved natural minerals (calcium and magnesium) in drinking water. These minerals are an important part of a healthy diet. Hard water contains more mineral nutrients and less sodium. A gradual build-up of calcium and magnesium in hard water can form harmless, filmy white deposits on faucets, bathtubs, and tea kettles. Hard water also requires more soap to lather fully. The degree of water hardness varies depending on where you live. Newark's water in this area typically has a hardness level of 47 to 60 parts per million which means it is moderately soft.



## **Why is there chlorine in my water?**

A century ago, acute diseases such as typhoid fever and cholera were a very real threat to our health because the microorganisms that caused these diseases were found in public drinking water. However, for almost 100 years, water suppliers in America and other countries have used chlorine to treat or disinfect drinking water. According to the U.S. Environmental Protection Agency and other health agencies, chlorine is currently one of the most effective disinfectants to kill harmful microorganisms. Disinfection of all public water supplies is required by federal and state laws and regulations, including the Safe Drinking Water Act and the Surface Water Treatment Rule.

## **What is Turbidity?**

Turbidity is a measure of the cloudiness of water. The City monitors it because it is a good indicator of water quality. High turbidity can hinder the effectiveness of disinfection.

## **Does Newark add fluoride to my water?**

No. Newark does not add fluoride to the water in your community. However, a small amount of fluoride may occur naturally in your water. About 0.10 parts per million fluoride was detected in your water supply last year.

You may have noticed media attention to public water supply issues related to radiological substances, mercury, lead, radon, arsenic and Cryptosporidium. At Newark, we are well aware of these and other water quality matters. We have performed- and continue to perform - extensive testing of all of our water supplies. We want to assure our customers that we are providing the high-quality water you expect and deserve. You may be interested to know the following information:

### **⇒ Radiological Substances:**

Our tests show the radiological substances level in our water supplies is significantly less than the level deemed acceptable by the U.S. EPA. In some cases, the level is so low that it cannot be detected. These substances are naturally occurring radioactive compounds.

### **⇒ Mercury:**

Our testing equipment can detect mercury at a level 10 times less than the standard, and even at that low level, we have not detected mercury in our supplies.

### **⇒ Lead:**

While the concentration of lead leaving the NJDWSC treatment facility and the Newark Pequannock facility is far below the action level (AL) of 15 parts per billion mandated by the Federal Lead & Copper Rule (most times it is non-detectable), some communities which the Commission and Newark serves, have failed to meet the AL at the water tap. It has been determined that this lead is most likely caused by lead pipes or lead solder and faucet mixtures in home plumbing and is not coming from the source supply. Newark's Pequannock Supply zone in the City of Newark, for the one round of testing conducted in 2003, was below the AL as was the Wanaque Supply zone. No sites exceeded AL for lead and copper. It should be noted that infants and children, who drink water containing lead in excess of the action level, could experience delays in their physical and mental development. Children could show deficits in attention span and learning abilities. Also, adults who drink this water over many years could develop kidney problems or high blood pressure. High concentrations of lead are more prevalent in water which sits in home plumbing pipes for a number of hours (particularly overnight). One way to reduce these levels below the AL would be to flush a toilet or run a tap for 30 seconds to a minute or until a discernable temperature change in the water is noted. We have run laboratory studies on water from Newark households and found that lead levels consistently dropped below the 15 ppb, after a tap was left running for 30 seconds to a minute prior to its use. Consumers are encouraged to employ this technique at least once a day or when water has remained stagnant in pipes for long periods. This would generally occur in the morning or when returning home from work or school.

### **⇒ Sodium:**

For healthy individuals, the sodium intake from water is not important, because a much greater intake of sodium take place from salt in the diet. However, sodium levels above the recommended upper limit may be of concern to individuals on a sodium restricted diet.



⇒ **Cryptosporidium:**

Lakes, rivers, and reservoirs may contain this tiny microbe. It is found in feces of humans and many domestic and wild animals. We test for Cryptosporidium on a monthly basis in our Pequannock finished water surface water supplies. It has never been detected in a viable state in any of our treated water supplies. Neither has it been found in the Wanaque Supply.

⇒ **Total**

**Trihalomethanes (TTHMS):**

Since untreated river and lake water contains organisms that might make consumers ill, NJDWSC and Newark use a disinfectant in its Water Treatment Plants. Chlorine is used as a primary disinfectant and to maintain a level of disinfection in the pipes that transport the water to homes and businesses in Newark. When organic compounds in untreated water react with the disinfectant, they produce by-products. In excessive quantities, these by-products may have harmful health effects. The EPA regulates some of these by-products known as TTHM's.

Newark receives water that meets the yearly MCL average for TTHM's. NJDWSC and NEWARK have recently modified its treatment to further reduce its TTHM's and is currently participating in a statewide study to help further reduce the amount of naturally occurring organics in its watershed. Newark is planning to modify its treatment process to further reduce its TTHM's by the use of ozone as a disinfectant.

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive mineral, and can pick up substances resulting from the presence of animals or from human activity.

**Substances that may be present in wells, lakes, reservoirs, and other untreated sources include:**

- ⇒ Microbes such as viruses and bacteria that may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
- ⇒ Inorganic substances such as salts and metals that can be naturally occurring or result from urban storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.
- ⇒ Pesticides and herbicides that may come from a variety of sources such as agriculture, urban storm water runoff, and residential uses.
- ⇒ Organic chemical substances including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff, and septic systems.
- ⇒ Radioactive substances that can be naturally occurring or can be the result of oil and gas production and mining activities.
- ⇒ To ensure that tap water is safe to drink, the Environmental Protection Agency prescribes regulations that limit the amount of certain substances in water provided by public water systems. Food and Drug Administration regulations establish limits for substances in bottled water that must provide the same protection for public health.

The Safe Drinking Water Act regulations allow monitoring waivers to reduce or eliminate the monitoring requirements for asbestos, volatile organic chemicals and synthetic organic chemicals. Our system received monitoring waivers for asbestos and synthetic organic chemicals.

**Important Information About Your Drinking Water**

**Newark had levels of haloacetic acids above drinking water standards**

Although this is not an emergency, as our customers, you have a right to know what happened, what you should do, and what we are doing to correct this situation. Our water system recently violated a drinking water standard.



We routinely monitor for the presence of drinking water contaminants. Testing results we received on 03/23/2005 show that our system exceeded the standard, or maximum contaminant level (MCL), for haloacetic acids on the first quarter sample. The standard for haloacetic acids is 60 parts per billion. The first quarter sample was 61 parts per billion. The average level of haloacetic acids over the last year was 52 parts per billion.

#### **What happened? What is being done?**

A new treatment technology is required to meet new regulatory standards. We anticipate resolving the problem within the next 24 months.

#### **What does it mean?**

This is not an immediate risk. If it had been, you would have been notified immediately. However, some people who drink water containing haloacetic acids in excess of the MCL over many years may have an increased risk of getting cancer.

#### **What should I do?**

You do not need to use an alternative (e.g., bottled) water supply. However, if you have specific health concerns, consult your doctor.

For more information, please contact Anthony DeBarros at (973) 256-4965.

Please share this information with all other people who drink water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail.

#### **Required Additional Health Information**

Special Considerations Regarding Children, Pregnant Women, Nursing Mothers, and Others.

Children may receive a slightly higher amount of a contaminant present in their water than adults, on a body weight basis, because they may drink a greater amount of water per pound of body weight than adults do. For this reason, reproductive or development effects are used for calculating a drinking water standard if these effects occur at lower levels than other health effects of concern. If there is insufficient toxicity information for a chemical, an extra uncertainty factor may be incorporated into the calculation of drinking water standard, thus making the standard more stringent, to account for uncertainties regarding these effects. In the case of lead and nitrate, effects on infants and children are the health endpoints upon which the standards are based.

#### **Nitrate:**

Nitrate in drinking water at levels above 10 ppm is a health risk for infants of less than six months age. High nitrate levels in drinking water can cause blue baby syndrome. Nitrate levels may rise quickly for short periods of time because of rainfall or agricultural activity. If you are caring for an infant, you should ask for advice from your health care provider.

#### **Lead:**

Infants and young children are typically vulnerable to lead in drinking water than the general population. It is possible that lead levels at your home may be higher than at other homes in the vicinity as a result of materials used in your home plumbing. If you are concerned about elevated lead levels in your home water, you may wish to flush your tap for 30 seconds to 2 minutes before using tap water. Additional information is available from the Safe Drinking Water hot line at 800-426-4791.

#### **Arsenic:**

There was no detectable Arsenic in the drinking water in 2005.

To ensure that tap water is safe to drink, EPA prescribes limits on the amount of certain contaminants in water provided by public water systems. FDA regulations establish limits for contaminants in bottled water.

**Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline (800-426-4791).**

The PWSID for Pequannock System is 0714001 and Wanaque system is 1613001. Funding for the City of Newark's Annual Water Quality Report is provided by the Municipal Budget for the Department of Water Sewer Utility.





# City of Newark

## Sharpe James, Mayor

Mayor Sharpe James

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### Business Administrator

Richard Montellh

Department of Water Sewer Utility  
Alvin L. Zach, P.E., L.S. for Department of Water Sewer Utility

Division of Sewers and Water Supply  
Anthony DeBarros, Manager

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